REMARKS

Upon entry of the foregoing amendments, claims 1, 7, 10, 13-22, 25-47 and 49-61 are under consideration. Claims 1, 7 and 10 have been amended. Claims 2-6, 8-9, 11-12, 23-24 and 48 are cancelled. Claim 62 is new. Claims 1, 7 and 10 have been amended to correct typographical errors. Support for further amendments to claim 1 and new claim 62 can be found in the specification at page 65, lines 9-11 and in Figure 3C as originally filed. No new matter has been added.

I. Claims Objections

Claim 7 has been objected to because it contains two periods. In the amendment to claim 7 presented herein, the extra period has been deleted. This objection is has therefore been overcome and should be withdrawn.

Claim 10 is objected to because it contains a superfluous comma. In the amendment to claim 10 presented herein, the superfluous comma has been deleted. Applicants submit this objection has been overcome and request that it be withdrawn.

Claim 1 and its dependents are objected to because the claim 1(b) appears to contain a typographical error. Applicants have amended claim 1(b) to clarify that the claimed nucleic acid molecule is less than 487 base pairs in length comprising the nucleotide sequence of SEQ ID NO:5. As such, Applicants submit this objection has been overcome and respectfully request withdrawal of this objection.

II. Claim Rejections-35 U.S.C. § 103

Claims 1, 7, 10, 13-22, 25-47 and 49-61 have been rejected under 35 U.S.C. § 103(a) as being obvious over WO 2002/16655 (Harper 1), in light of Genbank Database Accession No. AX510060, WO 2002/16655, SEQ ID NO:2071 (Harper 2), and Genbank Database Accession No. AX507376, WO 2002/16655, SEQ ID NO:4755 (Harper 3), each published on February 28, 2002, and hereinafter collectively referred to as "Harper". According to the Examiner, the truncated constitutive promoter claimed in the instant application would inherently have the same functional characteristics as the promoter disclosed in Harper.

Amended claim 1 recites, an isolated nucleic acid molecule consisting of SEQ ID NO: 5, or an isolated nucleic acid molecule less than 487 base pairs in length comprising the nucleotide sequence of SEQ ID NO: 5, wherein the nucleic acid molecule regulates *tissue specific* constitutive transcription of an operably linked nucleotide sequence of interest.

Applicants traverse the rejection of independent claim 1 and its dependent claims on the grounds that the Examiner has failed to establish a *prima facie* case of obviousness. A *prima facie* case of obviousness requires that "either the reference(s) must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the reference(s)." *See* MPEP 706.02(j) citing *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). Knowledge of the disclosure provided by the instant application must be put aside when determining whether the claimed invention would have been obvious. *See* MPEP 2142.

To support the conclusion that the claimed invention is directed to obvious subject matter, the Examiner has cited and combined up to three references. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one ordinary skill in the art. *See* MPEP §2143.01, citing *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, 82 USPQ2d 1385, 1396 (2007). Furthermore, a statement that modifications of the prior art to meet the claimed invention would have been "well within the ordinary skill of the art at the time the claimed invention was made" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine or modify the teachings of the references. *See* MPEP §2143.01, citing *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993) (emphasis original).

There is no objective reason provided by the Harper references, either alone or in combination, that would lead the skilled artisan to combine and/or modify these references, nor is there any evidence that any resultant modification to these references to yield a constitutive promoter capable of tissue specific transcription would have been predictable. These references

fail to provide the skilled artisan with a reasonable expectation that truncation of the promoter disclosed in Harper would successfully provide the claimed tissue specific constitutive promoter.

The Harper references, alone or in combination, do not teach an isolated nucleic acid molecule consisting of SEQ ID NO: 5, or an isolated nucleic acid molecule less than 487 base pairs in length comprising the nucleotide sequence of SEQ ID NO: 5, wherein the sequence has *tissue specific* promoter activity, in that it will regulate constitutive transcription of an operably linked nucleotide sequence *in a tissue specific manner*, as specified in the claims as amended herein.

Harper discloses an 1161 base pair nucleic acid sequence (SEQ ID NO:2071) which encodes hydroxypyruvate reductase (HPR), and a 487 base pair nucleic acid sequence (SEQ ID NO:4755) which encodes a hyroxypyruvate reductase promoter sequence, each of which comprises the sequence of Applicants' SEQ ID NO:5. Additionally, Harper discloses that SEQ ID NO:4755 will function as a promoter in response to an abiotic stress (*see* Harper et al. page 4, lines 3-5)-- an inducible promoter. With respect to SEQ ID NO:4755, there is nothing in Harper that discloses anything less than the 487 base pair sequence of SEQ ID NO:4755 in its entirety as having promoter activity. Likewise, there is nothing in Harper which suggests that anything less than the 487 base pair sequence of SEQ ID NO:4755 would be desirable. Furthermore, there is nothing in Harper that suggests any other expression characteristic aside from an abiotic stress inducible promoter.

The Examiner asserts that it is well known that making truncations frequently results in the creation of a constitutive core promoter sequence, and therefore it would have been obvious to modify the promoter of Harper to arrive at the claimed invention (*see* Office Action, page 4). The Examiner cites Singh et al., *Nature* 21(12): 1812-1822 (2002), ("Singh") to support his assertion that it is well known that truncations frequently result in the creation of a constitutive core promoter sequences. However, Singh provides only one specific example where truncation of a particular promoter, Id-1, to remove a repression site resulted in the creation of a constitutive promoter. Nowhere in Singh is it taught or suggested that truncation of <u>*any*</u> promoter would result in the identification of a constitutive core promoter sequence, no less create a tissue specific constitutive promoter, as required by amended claim 1. Additionally, Singh fails to provide any guidance regarding where a promoter sequence should be truncated to result in a constitutive core promoter sequence, other than for Id-1. As such, Applicants submit

that this one particular example of promoter truncation to arrive at a constitutive core promoter sequence fails to provide sufficient evidence to support the proposition that all promoter truncations necessarily result in a constitutive core promoter element.

Even if the Examiner's assertion that making truncations frequently results in the creation of a constitutive core promoter sequence was true, with which Applicants do not agree, Harper fails to provide the skilled artisan with any reasonable expectation that truncation of SEQ ID NO:4755, or any other promoter sequence disclosed therein, would result in *tissue specific* transcription, as required by the amended claims and demonstrated in the application as originally filed. As shown in Figures 3B and 3C of the instant application, a transgenic *Arabidopsis* line of pHPRT-GUS (*i.e.*, SEQ ID NO:5 operably linked to the reporter gene beta-glucuronidase ("GUS")) showed GUS staining that was primarily restricted to the aerial tissues, demonstrating tissue specific transcription by the pHPRT promoter (*i.e.*, SEQ ID NO:5). Furthermore, Harper provides no guidance whatsoever regarding which location along 487 base pair sequence of SEQ ID NO:4755 should be truncated to arrive at a constitutive promoter sequence capable of tissue specific transcription, such as the 288 base pair nucleotide sequence of SEQ ID NO:5, or nucleotide sequence having less than 487 base pairs comprising SEQ ID NO:5, as claimed herein.

The instant invention brings a valuable and unexpected (*i.e.*, unpredictable) contribution to the field of plant genetic engineering. Plant promoters having specific expression characteristics and the capability to maintain high levels of expression in those specific tissues are useful to engineer plants having modified and/or improved agronomic traits. The Harper references fail to provide the skilled artisan with any objective reason to truncate SEQ ID NO 4755, or any other promoter disclosed therein, or any reasonable expectation that truncation of SEQ ID NO:2071 or SEQ ID NO:4755 would result in a promoter sequence capable of tissue specific transcription. Moreover, the Harper references fail to teach the specific truncated promoter according to SEQ ID NO:5 of the instant invention.

As such, there is no objective reason provided in the Harper references, alone or in combination, that would lead the skilled artisan to arrive at the claimed invention. Moreover, there is no evidence that the results generated by combining and/or modifying these references would have been predictable at the time the instant invention was made. Any suggestion that it would have been obvious to truncate the promoters of Harper to arrive at the constitutive

promoter of SEQ ID NO:5 capable of transcription primarily in aerial plant tissues, as required by amended claim 1, is an improper application of hindsight based on Applicants' disclosure in the instant application. Thus, Applicants submit that the Examiner has failed to establish a *prima facie* case of obviousness and request that this rejection be withdrawn.

CONCLUSION

Applicants believe that the claims, as amended, are in condition for allowance. If the Examiner has any questions, the Examiner is invited to contact the undersigned by telephone.

Respectfully submitted,

/Lillian Horwitz/
Ivor R. Elrifi, Reg. No. 39,529
Cynthia Kozakiewicz, Reg. No. 42,764
Lillian Horwitz, Reg. No. 57,040
Attorneys for Applicant
c/o MINTZ, LEVIN
Tel: (617) 542 6000
Fax: (617) 542 2241
Customer No. 30623

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